

AVIATION

The Oldest American Aeronautical Magazine

MAY 19, 1924

Issued Weekly

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Air Power afloat—Aircraft Squadrons, Scouting Fleet, anchored off Culebra Island, Porto Rico

VOLUME
XVI

SPECIAL FEATURES

NUMBER
20

THE STOUT AIR PULLMAN
MODERN RADIATORS FOR AERO ENGINES
THE AIR SERVICE'S CENTRAL AMERICAN FLIGHT
DUPLICATION OF FUNCTIONS IN AERIAL COAST DEFENSE

GARDNER PUBLISHING CO., Inc.
HIGHLAND, N. Y.
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PUBLISHER'S NEWS LETTER

The publication of the figures showing the cost of our Government Air Service has brought much praise and also some criticism. The criticism appears to be based on the assumption that if Congress and the public know that we are spending so much for aviation, there will be a saving show of appropriations. As one friendly correspondent writes:

"However, the shock of my life came when I read your article about the costs of the Air Service. How in the world did you come to do it? If there is one action which would come nearer to preventing any future increases in air appropriations than the action taken by you, I cannot imagine of what it could be, because you played it up to make the case look as bad as possible. Very likely the result will be that next year, instead of \$12,000,000 for running the Air Service, it will be \$5,000,000, all of which will be necessary for the operation of the Air Service. Therefore, there will be no money left for the aircraft manufacturers."

This letter was not from anyone connected in any way with the aircraft industry, but from a man who looks at the matter from the government point of view. Such a criticism deserves a very brief answer and our readers will naturally be interested in our point of view.

During the war, and ever since, civilians have been bitterly criticized for their part in the "billion dollar aircraft scandal." Only last month the Department Commander of the American League of New York sent out the following statement to members:

"Over a billion dollars was paid to contractors to supply airplanes and yet not one airplane flew over the Western Front. These debts the Government paid and none of them became rich."

General Patrick, in a signed article published in *Aviation History*, February, 1923, gives the net cost of War Aircraft as \$363,131,113.50, also indicating the value of fields and mobile war stocks on hand. Of this a comparatively small percentage went for the purchase of airplanes in this country.

The point we believe to be of the greatest importance is that since the war the Government has spent almost as much for aviation as it did in that supreme effort, and still we are without adequate numbers of airplanes. If the evidence fell down in production during the war period, we believe that the officers who have had the spending of the appropriations should let the taxpayers and citizens know just how they are backing up our air defense. They should tell the restoration under which they operate. As the figures which we

quoted were those given to the Appropriations Committee of Congress, we cannot believe that their reproduction in an aeronautical paper which goes to those who have the best interests of aviation at heart can result in halving the appropriations next year. Rather, it will cause discussion and show the great need for some constructive air policy, instead of the haphazard methods now in vogue.

Continuing increases of appropriations, we feel certain that with the present attitude of President Coolidge and Congress, there is little hope for increased appropriations for aircraft. We certainly do not share in the belief that Congress should be told that \$67,000,000 is being spent for aviation while the public is given the impression that it is only \$28,500,000, and that Congress will not give enough money to support the service and purchase aircraft as well. It is apparent, with an aviation conference in prospect, that every country will wish to show that air preparation in the least expensive and most efficient form of defense. To do this, Congress, the public and particularly those interested in aviation should know how much money is being spent and how it is being used. For this reason AVIATION feels that instead of accumulating future appropriations, it has shown here needlessly in our air force and how vitally necessary it is to spend the money that is available in the best advantage.

As to making "the case look as bad as possible," we say very seriously that if it had been our purpose to do this, we would not have confined ourselves to the figures and statements made to Congress. We do not believe, in making up a bad case for the Air Service, that we do believe that the facts that are given to Congress by officers should be discussed in the aeronautical press. Our correspondent appears to feel that if appropriations are reduced there will be no money left for the aircraft manufacturers. That appears to be the case at present, with practically all the companies that do so or running on a quarter capacity basis.

To put it directly, the purpose of AVIATION in this year has been to bring to the attention of aviators, and to put the interests of the art and science and industry above all other considerations. That all the slides of our aeronautical papers have fallen by the wayside indicates that this policy has been sound. And our readers can be assured that regardless of criticism, AVIATION will continue to give them the facts of aviation in as constructive a manner as possible.—L.D.C.

MAY 19, 1924

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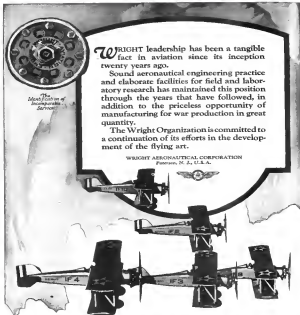
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Aircraft Expenditures

IN line with the recent deliberations made by AVIATION regarding the use to which aeronautical appropriations have been put in the last few years, this statement has been sent recently that have a direct bearing on the matter.

Chief David B. Swanson, secretary of the Aeronautical Board, which is composed of representative officers of the Army and Navy Air Services, made the following statement before the Appropriations Committee:

"I am afraid the way we are going that our money is going into institutions for using strength. Think is what I am objecting to. Instead of getting in one institution and more service, we are putting in two institutions and dividing up our money so that neither one of us is getting enough aircraft to do anything with."

Admiral Robert E. Coates, Commander of the United States Fleet, in his statement issued last week regarding the material condition of the Fleet, does not say the blame on the condition of appropriations, but places a considerable part of it on the excessive overhead at Navy Yard, which, he declares, "uses up the money available without putting a sufficient portion of it into ships."

The method of using appropriations is evidently being brought under discussion by the statements continually made by some officers of both Services, when they talk in public. It appears to be known for the defense, construction of the country's Military and Naval Services. Congress has usually an interest in finding out where the money is appropriated, goes, and statements like the above will only lead to further inquiry.

"Constructive Economy" would appear to be one of the probable slogans of President Coolidge's campaign, and the idea will have the hearty endorsement of the country.

That more money is needed for our air defense is obvious from the condition the Air Service are in—but first there should be the best use made of the present funds. When this is settled, then more funds can be asked for and secured with a less condition of economy.

An Important Question

CONGRESSMAN BRITTEN'S Resolution asking the Secretary of the Navy to furnish the House of Representatives with information about the Navy contains a question concerning aviation that seems to be extremely pertinent of the hour.

Congressman Britten asks: Is it a fact that America leads the world in the theory and science of aviation, and yet trails behind Great Britain, France and Japan in aeronautical preparations for national defense?

Whether or not we lead the world in aeronautical engineering and research may be disputed, but if world records are

any indication of superiority, then our American aircraft designers can at least have a strong reason for feeling such a claim.

There can be no doubt that the United States is behind France and Great Britain in actual aeronautical service equipment and in combatant air units. We are not sufficiently informed regarding the organization of the Japanese air services to give an opinion, but the mere asking of the question would indicate that Japan is, if not ahead of us, at least catching up rapidly enough.

The real heart of the problem is the lack of modern service aircraft. This is due largely to two causes. First, the misdirection of appropriations for this purpose, and second the uncertainty of the officials in charge as to what kind of equipment they want. Millions of dollars have been spent on engineering and research work, so that after four years of this work there should be a definite idea as to what institutions to go to for service planes under present production possibilities. In other words, it is infinitely preferable to settle this year on a few "excellent" airplanes and put them in production so the squadrons can be equipped with them than to postpone this work until next year so the whole tabular hope of getting "a super-excellent" airplane. For then the excellent airplane will have become only "very good" and someone will suggest waiting until the "really excellent" airplane becomes available ten years hence. It is obvious that such a policy will never give us modern service aircraft in sufficient numbers.

Major Martin's Return

THE happy termination of the adventure which killed Major Martin and Sergeant Harvey after the Alaskan wilderness had continued them up for twelve days is a good augury for the ultimate success of the American World Flight. To have survived a crash into a mountain in foggy weather, and then to have tramped for seven days back to civilization under such severe weather conditions shows a physical and mental hardiness which are typical of the Air Service. Major Martin and Sergeant Harvey have been worthy of the Air Service's "never-give-up" spirit.

A Strong Rejoinder to Come

AVIATION for the lack of space has had to spend over several issues the digest of the House Hearings on Air Service duplication, and it is so doing that have appeared to give the Army attack on the Navy under prosecution. This was because the complementers are always given the first opportunity to state their case. The testimony of Captain Swanson which appears in this issue does, the line of Admiral Moffett and this will be published in the next issue.

Modern Radiators for Aeronautical Engines

LIGHT PLANES AND GLIDERS

Edited by Edmund T. Allen

Interest in Light Planes Grows

With interest in aviation at the remarkable growth of interest in American flying circles regarding the light plane, the numerous letters AVIATION receives on this subject would be illuminating to the most skeptical. Before we arrived at the decision of our particular line of aviation news, we took forward to the observations—and first rule is psychology that this will win your participation that you will find it expedient to give him more space in the magazine.

His own recent article (Nov. 11) regarding a design that would be "not a mere speed freak," but possess the all-around qualities of low-loading speed, quick climb, and large speed range, coupled with the suggestion for comparative performance in the way of cross-country flying, with some loads which would demonstrate economy, show the proper construction at what a little plane should be first tested of.

If our opinion is acceptable, we would merely qualify more definitely, some of the editorial features. We would say, for instance, instead of quick climb—only. Maximum altitude at the expense of time, would be a quality preferable to quick climbing. It might be argued that each of these qualities involve the dissimilarity of engine horsepower, but maximum altitude can best be attained with lightly loaded aircraft, a device in itself best suited to a practical type of light plane. Also, instead of a mere balance, say, Dayton at Detroit, we would favor a cross-country race, making a circuit covering six or more states—something six or more landings. The "loading without-cracking-up" quality, more than any other, will characterize the successful and practical light plane. But, as we have said, the "speed freak," so often referred to by the "engine" men, should really mean to approach that which would a mile apart to discover, builders and pilots.

We really say we submit these ideas with an ulterior motive. We have designed, and are getting under way to produce, what we will call the Blount-Glenn, (Blount, Detroit, Western U. S.), a machine we confidently expect will demonstrate requirements of a safe, cross-country touring light plane.

We submit as free advertising, we do suggest however, that if Mr. Allen continues to put forward the ideas in question, that he may want power to action, receive the flying "word" of "the good old days," invite also the manufacturers of engines, accessories, and planes, whose sale still will not be Government contracts, and whose number should will serve the best—most desirable, support that companies like Aviatex. Speed the day!

JOHN A. BLAUGHER
Los Angeles

Editor, AVIATION—
I want to write an open letter to Captain Bartholomew on the subject of his freckles. The freckles are the only defect in his appearance, and, according to the Dayton light plane events and some of the other events, and would be glad to compete for the trophy under suitable conditions. I am naturally interested in seeing the other drivers and also of the greatest degree of fairness to all contestants, including myself.

The fact is I started to light a light plane designed for the highest economy and practical safety, and this was entered,

but did not appear in the On-to-Six London event. It would be impossible under ordinary conditions, even if the participants could be expected to be helped for the design, it was my own at 101 Lanes or at Dayton that year or under the proposed Rochester rules.

The new entries which are hoped to be ready for Dayton, and designed for the purpose of starting speed races, it is the same as the proposed going to extremes of design. The efficiency matter is purely a question in the light plane event, for the reason that no speed airplane can win both the speed and the endurance. It is a matter of fact, and very true, that in their speed and the winner "just happens" to win the race in relation to other contestants.

Captain Bartholomew has made a similar mistake to the Dayton event, but he has made this mistake in a capacity the opposite direction, for the reason that neither he nor Dayton has made any mistake allowance for relative speed. He has placed the greatest premium on the relative speed, speed of any aircraft given an air on test stage. He has also placed a high premium on an aircraft or dangerous tendency, which under his proposed rules is to use the machine possible power that will carry the weight specified, with no reserve whatever of such a thing would be possible. In limiting the displacement to 300 lbs. for the absolutely best the highest efficiency engine that has enough power for practical purposes.

Under Bartholomew's plan, if designed for exclusively, would produce a five speed freak just as much as the Dayton event will produce a high speed freak to win, for no suitable allowance has been made for comparative speed.

In the light plane, the power is given a double series through the air at 100 m.p.h. as it does to show the same surface through the air at 50 m.p.h., that is in proportion to the cube of two which is the speed ratio. Therefore, if we take the proportion of the cube of the speed divided by the power, we have a figure of two which gives us a basis for any speed airplane. Figure it out at my speed from 50 m.p.h. or 100 m.p.h., and if other things are equal the figure of eight will be the same.

It is a fair matter of power? Cylinder size? Absolutely not! Diameter? Certainly. All engines use gasoline in almost direct proportion to the delivered power depending only on the relative efficiency of the engine.

It is a fair matter of power? Cylinder size? Absolutely not! Diameter? Certainly. All engines use gasoline in almost direct proportion to the delivered power depending only on the relative efficiency of the engine.

Mr. Bartholomew does not produce automobiles to sell transportation on the two-mile basis, and if he did he could not sell them, so that the development would have no commercial value. I therefore propose to Mr. Bartholomew that a speed test be proposed to judge the type of "speed freak" in an airplane, which the Bartholomew or engine is an automobile, and what is more I propose to spend a great deal more money and time in proportion to the number of competitors for the trophy than what the trophy represents to Mr. Bartholomew in proportion to his resources.

I would care the least on displacement to 510 or 10, I would care to have a grand free-fall test open to any contender as active as they wish to come in within a reasonable size, and then I would forget the size. Terminal power curves is even possible in increased gasoline consumption.

I would have the race run over a more or less rough road course, in order that the faster contestants would not have any advantage due to the relative low velocity, a certain distance. I would have also some kind of a figure of merit or points credit, based on the number of man-hours which

a take to disassemble, pass through the 8 ft. opening, and assemble and get ready for actual flight of the airplane. Then (no man taking one hour for this performance would be 120 m.p.h. engine, and the engine would be 120 m.p.h. engine. Pilot should be required to make up to a certain weight with ballast, which I would put at 170 lb. in order that all may be on an even footing.

The purpose of efficiency would then be: Total weight of pilot & plane "Speed" plus points for man hours on assembling test.

This is, a certain total weight is carried over the course, with a certain amount of gasoline, to which a conversion is added based on the relative speed and some points added for the practical ability of quick assembly.

The light small airplane figures pretty close to the 350 gals. per hour in this kind of an efficiency contest, but I believe myself the light plane will win. Anyway I would like to see the engine that has the best of these developments or is intended to develop 40 hp.

R. H. WOOD

Chico, Ind. 24

P. S. I would like to know from any readers of AVIATION as to their opinion on the formula, as I believe constructive criticism will help those who will offer trophies or prizes for the competition. Between the two events and the winner, it is proposed by dividing by an engine to get within our power.

Two de France des Avionnettes

The French light plane competition this year is to take the form of a contest between two aircraft, one similar to that used in the most in other classes of aircraft, a complete circle of France with landings required at all the large cities on the route. July 24 to 26 has been announced as the date of the event. Each single engine and two engine are allowed as contestants, the single engine with engines of 2000 c.c. or less (122 c.c. 1) and the two engine with engines of 2000 c.c. or less (135 c.c. 1) displacement.

Major Competition will appear driving in the model road because of the great variation in engine size in the two events. The British Air Ministry requires two engines to be carried with engines of 1000 c.c. or less, and the engine must be under 12. It must not, however, be overstated that the French competition is a far more strenuous contest than the British Competition.

A cross country race is a very different sort of proposition is a dissimulation of the usefulness of aircraft, than a competition held over a single flying field. The British representative, very high, and undoubtedly very high, the advantage of the French will be obtained in the machine tested. They must be both to fly at all under the conditions.

A Probable Instrument

As the result of several years work, the Bureau of Standards has developed a new altitude indicator by means of which measurements may be made of strength, force, displacement and resistance, and the results obtained or recorded in our own minds.

This instrument depends for its operation upon the piezo-electric characteristic of the corresponding displacement resistance characteristic of a stack of carbon plates. The instrument is composed of a number of thin layers of metal in lower relationship between resistance and displacement have been overcome, so that the instrument has proved successful for which minor device have failed.

This is the instrument has been used for the following purposes:

- Measurement of loads in airplane air cables during flight.
- Measurement of strains in airplane gears and bridge sections during construction tests.

demanded. But it is very doubtful if any lengthy cross-country flights would be attempted in two engine with 10 c.c. in engine. In fact, the British officials do not expect to see any cross-country work in the competition. It is believed that by limiting the engine size so radically for the competition, designers will exert themselves more to obtain high efficiency than would be necessary had they larger engines. Later slightly lower engines can replace the lighter ones for greater reliability, and with these cross-country flights can be undertaken with safety. One exception must not be overlooked, that is the flight of Alvin Collins from London to Brussels on the 1000 with the 96 c.c. engine. But this remarkable flight is distinctly the exception.

The French Competition, on the other hand, has a entirely different purpose. The object in view is to develop the small engine or compressed airplane with a high degree of reliability and usefulness. The work of Maréchal on the Devoillon light plane, which he brought to America and in which he expected to fly from New York to Chicago, attracted the attention of the American aviation community. It is obtainable in the extremely small engine. They were also made to test that the large type and even required the necessary change with very few, and with a great decrease in loading in small fields and in handling and caring for on the ground. Thus their aim was deflected away from pure efficiency which seemed highly impractical, toward reliability and greater safety.

The French Competition is a very different sort of proposition, a fairly large proportion of the entrants, the most will be considered likely worth while and a different and useful type of light plane will have reached an advanced stage of development.

Not Seven-Ninths of a Horsepower

Recent newspaper dispatches from Germany carried the startling news that a German light plane had successfully flown with pilot and a passenger on board which only sang in engine of 7.9 (seven-ninths) hp. The news item was reproduced in AVIATION with the usual reservation that very unusual atmospheric conditions must have existed to enable such a machine to fly even 20 m. at 2 hr. and to climb 3400 ft. in 10 minutes.

The latest German aeronautical magazines afford a complete explanation of this seeming mystery. The plane in question did not have an engine of seven-ninths horsepower, but a 10-hp. engine. The engine was a two-cylinder, four-stroke, and was built in 1922. The engine in transmission evidently occurred from the German custom of naming the "valving work" 1/2 to denote "horse" in the rating of the engine. The engine was built by the RWT engine in Treuenbrietzen in a German government on hand of 1000/200 lb. weight.

Never was a lightweight, the construction of the plane, has been described in a very detailed and detailed description of his product, which will appear in a forthcoming issue.

(3) Tests of airship progress in the laboratory.

The use of this instrument results not only in a great saving of time and effort where a large number of readings are needed, but also enables several classes of measurements to be made, not hitherto obtainable in their true proportions.

D. H. Robertson out of Hospital

The numerous friends of Capt. Douglas H. Robertson, formerly of the Royal Flying Corps, will be glad to know that he has been discharged from the Atlantic City Hospital after having been confined there thirty-three weeks for treatment.

Captain Robertson suffered a fractured spine and a compound fracture of the foot on April 8, 1933, when a airplane piloted by Dr. H. Livingston Allen crashed near Atlantic City. The pilot suffered a fractured skull, several bones broken and other injuries, but was discharged from the hospital some time ago. Captain Robertson, though not fully recovered, is doing fairly well.

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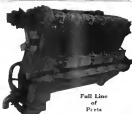
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FOR EXCHANGE—Standard 12, 60% motor, 100 landing gear. Ship never moved over. Will exchange for high-grade car. Might take sport ship as part payment. Miller Aviation School, Benton, Ill.

Would like to correspond with manufacturer interested in building new motor suitable for light planes. Box 298, AVIATION.

FOR SALE—Sport Parson 1923 model used for demonstrating. New being reassembled. Price with two motors, four propellers and spares \$2500.00, with one motor and no spares \$1655.00. Lexington Exhibition Company, 518 Atlantic Bldg., Philadelphia.

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FOR SALE—Hall-Scott motor parts, all new, crank cases, connecting rods, pistons, connecting rods, and all other parts. The Citizen Flyer Company, Trenton, N. J.

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